UNIT-I:


UNIT-II:

Micelles and Macromolecules: Surface active agents, classification of surface active agents, micellization, hydrophobic interaction, critical micellar concentration (CMC), factors affecting the CMC of surfactants, counter ion binding to micelles, thermodynamics of micellization- phase separation and mass action models, solubilization, micro emulsion, reverse micelles.

Polymers- Definition, types of polymers, electrically conducting, fire resistant, liquid crystal polymers, kinetics of polymerization. Molecular mass- Number and mass average molecular mass, molecular mass determination- Osmometry, viscometry, diffusion and light scattering methods. Sedimentation, chain configuration of macromolecules, calculation of average dimensions of various structures.

UNIT-III:


UNIT-IV:


Text Books:

1. Physical Chemistry by Peter Atkins and Julio de Paula, Oxford University Press.
2. Physical Chemistry by G.W. Castellon, Narosha Publishing House
3. Physical chemistry by K.L. Kapoor

Reference Books:

1. Thermodynamics for Chemists, Samuel Glasstone
5. Micelles, Theoretical and applied aspects, V.Moroi, Plenum publishers.
UNIT-I:


UNIT-II:

Electron Spin Resonance: Principle and experimental technique-g-factor, line shapes and line widths-hyperfine interactions-applications of ESR studies to the structure of free radicals, metal complexes and biological systems.

UNIT-III:


UNIT-IV:


Text Books:

4. Physical Chemistry by Peter Atkins and Julio de Paula, Oxford University Press.
5. Physical Chemistry by G.W. Castellon, Narosa Publishing House
6. Physical chemistry by K.L. Kapoor

Reference Books:

6. Introduction to Electrochemistry, S.Glasstone.
7. Fundamentals of Molecular Spectroscopy, Banwell
8. Spectroscopy by Barrow.